CLAIMS

What is claimed is:

1. A binding molecule capable of selectively binding to a subset of CD38 proteins.

2. The binding molecule of claim 1, wherein said binding molecule selectively binds to a subset of CD38 protein expressing cells.

3. The binding molecule of claim 2, wherein said subset of cells is selected from the group of plasma cells and derivatives of plasma cells.

4. The binding molecule of claim 2 or claim 3, wherein said subset of cells comprises an activated hemopoietic cell.

5. The binding molecule of claim 4, wherein said subset of cells comprises an *in vivo* activated hemopoietic cell.

6. The binding molecule of claim 2, claim 3, claim 4 or claim 5, wherein said subset of cells comprises a T-cell and/or B-cell.

7. The binding molecule of claim 1, claim 2, claim 3, claim 4, claim 5, or claim 6, wherein said binding molecule and/or a CD38 binding part thereof is selected from a phage display library.

8. The binding molecule of claim 7, wherein said binding molecule comprises a CD38 binding part of a single chain antibody.

9. The binding molecule of claim 1, claim 2, claim 3, claim 4, claim 5, claim 6, claim 7, or claim 8, wherein said binding molecule comprises a human antibody and/or humanized Fab-fragment or a functional part, derivative and/or analogue thereof having binding activity for CD38.

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10. Use of the binding molecule of anyone of claims 1-9 for selectively marking a subset of CD38 positive cells.

11. A method of treating an individual suffering from a tumor of the lymphoid lineage, suffering from an autoimmune disease and/or suffering from an infection with a pathogen that depends at least in part on replication in activated T-cells and/or B-cells comprising using a binding molecule capable of selectively binding to a subset of CD38 proteins.

12. The method according to claim 11, wherein said binding molecule selectively binds to a subset of CD38 protein expressing cells.

13. The method according to claim 12, wherein said subset of cells is selected from the group of plasma cells and derivatives of plasma cells.

14. The method according to claim 12 or claim 13, wherein said subset of cells comprises an activated hemopoietic cell.

15. The method according to claim 14, wherein said subset of cells comprises an *in vivo* activated hemopoietic cell.

16. The method according to claim 12, claim 13, claim 14 or claim 15, wherein said subset of cells comprises a T-cell and/or B-cell.

17. The method according to claim 11, claim 12, claim 13, claim 14, claim 15, or claim 16, wherein said binding molecule and/or a CD38 binding part thereof is selected from a phage display library.

18. The method according to claim 17, wherein said binding molecule comprises a CD38 binding part of a single chain antibody.

19. The method according to claim 11, claim 12, claim 13, claim 14, claim 15, claim 16, claim 17, or claim 18, wherein said binding molecule comprises a human antibody and/or humanized Fab-fragment or a functional part, derivative and/or analogue thereof having binding activity for CD38.

20. The method according to claim 11, wherein said tumor of the lymphoid lineage comprises multiple myeloma.

20. A method for marking a CD38 expressing cell with a binding molecule comprising contacting a collection of CD38 positive cells with a binding molecule capable of selectively binding to a subset CD38 positive cells.

21. An isolated and/or recombinant nucleic acid encoding the binding molecule of any one of claims 1-9.

22. A cell expressing the CD38 binding molecule of any one of claims 1-9.

23. A method of selecting a binding molecule to a CD38 epitope, said method comprising: providing a selectively expressed CD38 epitope, and
selecting a binding molecule to the CD38 epitope by analyzing the binding of said selectively expressed CD38 epitope to a candidate molecule.